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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/925,884	08/06/2001	Michael Kenny	259/079	7035
45540	7590	09/05/2006	EXAMINER	
PERKINS COIE LLP/SEMITOOL			EL ARINI, ZEINAB	
PO BOX 1208			ART UNIT	
SEATTLE, WA 98111-1208			PAPER NUMBER	
			1746	

DATE MAILED: 09/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/925,884

Applicant(s)

KENNY ET AL.

Examiner

Zeinab E. EL-Arini

Art Unit

1746

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10,12-14,17,20,22-29,37,39 and 41-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10,12-14,17,20,22-29,37,39 and 41-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

The amendment and remarks filed on 6/21/06 have been acknowledged and entered.

Specification

In the specification, page 30, lines 2,11,13, "nozzles 56" should be changed to read "nozzles 156".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-7, 9-10, 12-14, 17, 22-29, 37, 39, and 41-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Torek et al. (6,758,938) in combination with DeGendt et al. (US 2002/0011257 A1) and Sasaki et al (5,785,068)(new reference).

Torek et al. disclose a method for stripping a layer from a semiconductor wafer. The method comprises introducing ozone into a process chamber and activating a water spray for a first predetermined amount of time, thereby creating a water layer on a semiconductor wafer, wherein the water layer transport high concentrations of the ozone to the semiconductor wafer. The reference discloses controlling a thickness of the water layer. The reference discloses rotating the workpiece. The reference also

discloses spraying heated water and forming a boundary layer of a heated liquid. See col. 2, lines 7-57, col. 3, lines 20-26, col. 5, lines 38-45, col. 7, lines 19-65.

Torek et al. teach all limitation with the exception of moving the liquid jet at speed sufficient to penetrate through the boundary layer, and the sonic energy as claimed.

DeGendt disclose a method of removing organic contaminant from a workpiece.

The method comprises, forming a layer or film of heated liquid on the workpiece, rotating the workpiece, controlling the thickness of the liquid layer on the surface of the workpiece, subjecting the solution to megasonic agitation (see claim 16), and introducing ozone gas into the process chamber with the ozone gas diffusing through the layer. See paragraphs 79 and 80. The reference also discloses rinsing the workpiece.

Sasaki et al disclose a method and apparatus for cleaning a substrate. The method comprises directing liquid jet at a substrate, and moving the liquid jet to dislodge the contaminants from the substrate. See the abstract, Fig. 1, col. 1, lines 5-17, 51-67, and col. 3, lines 9-38.

It would have been obvious for one skilled in the art to use the megasonic taught by DeGendt et al. in the Torek et al process to enhance the cleaning process. It would have been obvious for one skilled in the art to use the liquid jet, and spinning substrate, taught by Sasaki et al. in the Torek et al. in combination with DeGendt et al. process to enhance the cleaning process, by dislodging the contaminants from the surface of the substrate.

1. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Torek et al. (6,758,938) in combination with DeGendt et al. (US 2002/0011257 A1) and JP 11-300301 (JP'301).

Torek et al. in combination with DeGendt et al. as discussed supra do not teach introducing the sonic energy as claimed.

JP'301 discloses a method of washing a substrate in which washing liquid with ultrasonic waves is fed from a nozzle 11 to the rear of a substrate W whose surface is covered with a liquid film to wash it See the abstract.

It would have been obvious for one skilled in the art to use the sonic energy taught by JP'301 in the Torek et al. in combination with DeGendt et al. process to enhance the cleaning process.

1. Claims 1-2, 8, and 12-14, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeGendt et al. (257) in combination with Sasaki et al.

DeGendt disclose a method of removing organic contaminant from a workpiece.

The method comprises, forming a layer or film of heated liquid on the workpiece, rotating the workpiece, controlling the thickness of the liquid layer on the surface of the workpiece, subjecting the solution to megasonic agitation (see claim 16), and introducing ozone gas into the process chamber with the ozone gas diffusing through the layer. The reference discloses rotating the substrate at high speed. See paragraphs 79 and 80. The reference also discloses rinsing the workpiece.

The reference discloses all limitation with the exception of directing a liquid jet, and the angle as claimed.

Sasaki et al. as discussed supra disclose directing the liquid jet as claimed. Sasaki et al. disclose the nozzle angle being variable relative to the substrate. The reference discloses the optimal angle. See col. 2, lines 1-17.

It would have been obvious for one skilled in the art to use the liquid jet taught by Sasaki et al. in the DeGendt et al. process to improve the cleaning process. One skilled in the art would adjust the speed of rotation to obtain optimum results.

Response to Arguments


Applicant's arguments with respect to claims 1-10, 12-14, 17, 20, 22-29, 37, 39, and 41-48 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zeinab E. EL-Arini whose telephone number is (571) 272-1301. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1746

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Zeinab E. EL-Arini
Primary Examiner
Art Unit 1746

ZEE
8/30/06